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Special Issue on
**Clinical Brain-Machine Interfaces and
Neuroprosthetics: Concepts, Mechanisms, and
Applications**

CALL FOR PAPERS

Brain-machine interfaces (BMIs) translate neural activity into control signals of external devices, such as computers, robots, or prostheses. Since their conception in the 1970s by Jacques J. Vidal, BMIs have become versatile clinical tools enabling, for example, severely paralyzed individuals to communicate and regain control over movements. Besides use in assistive systems, BMIs are now also evolving as rehabilitation tools, for example, to improve motor recovery after stroke and traumatic brain injuries. In addition, closed-loop BMI systems allow activity-dependent stimulation of the brain and spinal cord. By fostering synaptic plasticity, incorporating long-term recurrent connection, or adjusting brain stimulation parameters, such bidirectional BMIs may lead to novel and more effective treatment strategies for various neurological and psychiatric disorders. Lastly, brain/neural computer interaction (BNCI) systems utilizing brain and other biosignals may foster inclusion of brain activity into daily life human-computer interaction (HCI).

We invite investigators to contribute original research articles as well as review articles extending the current state of the art in the field of clinical BMIs/BNCIs. We are particularly interested in original work addressing novel concepts, mechanisms, and applications of this new evolving technology.

Potential topics include, but are not limited to:

- ▶ Brain-machine interfaces for restoration of movement and communication
- ▶ Assistive technology using brain and other biosignals
- ▶ BMI/BNCI technology in the context of neurorehabilitation
- ▶ Clinical applications of closed-loop real-time brain stimulation
- ▶ Mechanisms underlying BMI/BNCI learning and control
- ▶ BMI/BNCI and cognitive plasticity
- ▶ Technological advances in implantable and noninvasive BMI/BNCI systems
- ▶ Novel applications of BMI/BNCI in basic and clinical neuroscience

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/bmri/rehabilitation/cbmi/>.

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